



1. General Course Information

1.1 Course Details

Course Code:	1007ICT
Course Name:	Introduction to Computer Systems and Networks
Trimester:	Trimester 1, 2021
Program:	Diploma of Information Technology In Person / Online
Credit Points:	10
Course Coordinator:	Dr Rob Baltrusch
Document modified:	20th January 2020

Course Description

Introduction to Computer Systems Networks is a 10 credit point course within the Diploma of Information Technology. The course is situated within the second trimester of the program. The Diploma of Information Technology is designed to provide students with a pathway to:

- further university study in Information Technology and related degrees, or
- employment opportunities within the IT industry.

This course introduces the underlying structures and mechanisms of modern computer systems and networks.

IT professionals, whether involved in software or hardware development, information systems development or management, need to have a fundamental understanding of the basic architecture and operation of a computer system. This course provides an overview of the hardware, software and network technologies that define modern computer systems. Knowledge developed in this course assists in the application of computing technologies to solve real world problems.

Assumed Knowledge

This course is not a prerequisite for any other Diploma courses.

1.2 Teaching Team

Your lecturer/tutor can be contacted via the email system on the portal.

Name	Email
Dr Rob Baltrusch	rob.baltrusch@staff.griffithcollege.edu.au

1.3 Staff Consultation

Your lecturer/tutor is available each week for consultation outside of normal class times. Times that your lecturer/tutor will be available for consultation will be available on the Moodle Course site.

1.4 Timetable

Your timetable is available on the Griffith College Portal at Class Timetable in Student and Services.

1.5 Technical Specifications

All students must have access to a computer or suitable mobile device.

2. Aims, Outcomes & Generic Skills

2.1 Course Aims

Introduction to Computer Systems Networks aims to provide students with a working knowledge of how the hardware, software and networking components that define a computer work together.

The primary cognitive learning outcome is for you to be able to confidently answer, in some detail from a technical perspective, the question, "How does a computer system work?" A secondary outcome is for you to understand the range of modern computing architectures that are available and their application to computing problems.

A specific application based outcome is that of learning how to control computer hardware through software.



2.2 Learning Outcomes

After successfully completing this course you should be able to:

1. Operate digital data and construct and evaluate digital logic components and processes
2. Demonstrate knowledge of the workings of the processor, storage, common hardware components, and basic operating system services
3. Understand the basic concepts of common networking models and the underlying networking hardware
4. Outline the basic concepts relating to security mechanisms and security policy
5. Identify and describe common computer hardware and software elements and explain how they interact with each other



2.3 Generic skills and capabilities

For further details on the Generic Skills please refer to the Graduate Generic Skills and Capabilities policy.

Griffith College aims to develop graduates who have an open and critical approach to learning and a capacity for lifelong learning. Through engagement in their studies, students are provided with opportunities to begin the development of these and other generic skills.

Studies in this course will give you opportunities to begin to develop the following skills:

Generic Skills and Capabilities		Taught	Practised	Assessed
Acquisition of discipline knowledge and skills with critical judgement		✓	✓	✓
Communication and collaboration			✓	✓
Self-directed and active learning			✓	✓
Creative and future thinking			✓	
Social responsibility and ethical awareness			✓	
Cultural competence and awareness in a culturally diverse environment			✓	



3. Learning Resources

3.1 Required Learning Resources

There are no required resources for this course.

3.2 Recommended Learning Resources

1. Barry G. Blundel, "Computer Systems and Networks", 1st ed., Thomson Learning, 2007
2. Behrouz A. Forouzan and Firouz Mosharaff, "Foundations of Computer Science: From Data Manipulation to Theory of Computation", 2nd ed., Cengage Learning, 2007.
3. J. Glenn Brookshear, "Computer Science: An Overview" 10th ed, Addison-Wesley, 2007
4. Irv Englander, "The Architecture of Computer Hardware and Systems Software - An Information Technology Approach." 3rd ed, John Wiley and Sons, 2003.
5. Andrew S. Tanenbaum, "Structured Computer Organization." 4th ed., Prentice Hall, 1999.
6. Randal E. Bryant and David O'Hallaron, "Computer Systems: A Programmer's Perspective", Prentice Hall, 2003.
7. Carl Hamacher, Zvonko Varanescic, and Safwat Zaky, "Computer Organization", 5th ed, McGraw Hill, 2002.

3.3 College Support Services and Learning Resources

The College provides many facilities and support services to assist students in their studies. Links to information about College support resources that are available to students are included below for easy reference.

[Digital Library](#) – Databases to which Griffith College students have access to through the Griffith Library Databases.

MyStudy – there is a dedicated website for this course via MyStudy on the Griffith College Portal.

[Academic Integrity Tutorial](#) - this tutorial helps students to understand what academic integrity is and why it matters. You will be able to identify types of breaches of academic integrity, understand what skills you will need in order to maintain academic integrity, and learn about the processes of referencing styles.

Services and Support provides a range of services to support students throughout their studies including academic advice and assignment help from Student Learning Advisors, and personal and welfare support from Student Counsellors.

[Jobs and Employment](#) in the Student Hub can assist students with career direction, resume and interview preparation, job search tips, and more.

[IT Support](#) provides details of accessing support, information on s numbers and internet access and computer lab rules.

3.4 Other Information about your Learning

Attendance

You are expected to actively engage in all learning experiences and learning activities which underpin the learning content in this course. You are expected to engage with the learning content and learning activities outside of timetabled class times. This requires you to be an active agent of your learning. You are expected to bring all necessary learning resources to class such as the required textbook and /or Workbook. In addition, you are encouraged to BYOD (bring your own device) to class such as a laptop or tablet. This is not a requirement as computer lab facilities are available on campus, however, the use of such devices in the classroom is encouraged with appropriate and considerate use principles being a priority.

Preparation and Participation in Learning

In order to enhance your learning, you need to prepare before participating in the learning experiences. Absorb the learning content and complete the learning activities that are provided online before you attend the scheduled learning experiences. Make sure you complete the learning activities set each week, they are designed to support your learning. Active participation in your learning will enhance your success. Ask questions when

something is unclear or when you want to bring some issue to your lecturer or tutor's attention; respond to questions to test your knowledge and engage in discussion to help yourself and others learn.

Consultation Sessions

Teachers offer extra time each week to assist students outside the classroom. This is known as 'consultation time.' You may seek assistance from your teacher on email or in person according to how the teacher has explained this to the class. Attendance during consultation time is optional but you are encouraged to use this extra help to improve your learning outcomes.

Course Learning Materials

Learning materials are made available to you in MyStudy on the Griffith College Portal. The learning materials are arranged in Modules. In each Module you will find the learning content, learning activities and learning experiences. Actively working your way through these course learning materials together with your lecturer or tutor will prepare you to succeed when completing the evidence of learning (assessment).

Self-Directed Learning

You will be expected to learn independently. This means you must organise and engage with the course learning content even when you are not specifically asked to do so by your lecturer or tutor. The weekly guide will be helpful to organise your learning. This involves revising the weekly course learning material and completing the learning activities. It also means you will need to find additional information to evidence your learning (assessment) beyond that given to you, and to construct your own response to a question or topic. All of this requires careful planning of your time. Expect to spend, on average, at least 10 hours per week including class time for each of your courses.

Program Progression

You are reminded that satisfactory Program Progression requires that attendance in classes is maintained at equal to or greater than 80%, and that GPA is maintained at equal to or greater than 3.5 [please see Griffith College Policy Library - [Program Progression Policy](#) - for more information].






Teacher and Course Evaluation

Your feedback is respected and valued by your lecturers and tutors. You are encouraged to provide your thoughts on the course and teaching, both positive and critical, directly to your lecturer and tutor or by completing course and lecturer evaluations via Griffith College's evaluation tool whenever these are available.



4. Learning content, learning activities and learning experiences

4.1 Modules for learning and weekly learning content, learning activities and learning experience

	Learning Content 	Learning experiences 	Learning activities 	Evidence of learning 	Learning outcome 
Module 1 Digital data and logic					
1	Introduction Recommended reading: Blundel (2007), Chapter 1	<ul style="list-style-type: none"> • Online activities • Discussion forum 	<ul style="list-style-type: none"> • Weekly lesson plan exercises 	<ul style="list-style-type: none"> • Weekly lab work 	1, 5
2	Data representations Recommended reading: Blundel (2007), Chapter 4	<ul style="list-style-type: none"> • Online activities • Discussion forum 	<ul style="list-style-type: none"> • Weekly lesson plan exercises 	<ul style="list-style-type: none"> • Weekly lab work 	1
3	Digital logic Recommended reading: Blundel (2007), Chapter 2	<ul style="list-style-type: none"> • Online activities • Discussion forum 	<ul style="list-style-type: none"> • Weekly lesson plan exercises 	<ul style="list-style-type: none"> • Weekly lab work 	1
Module 2 Digital processing and operating systems					
4	Processors & memory organisation Recommended reading: Blundel (2007), Chapter 3	<ul style="list-style-type: none"> • Online activities • Discussion forum 	<ul style="list-style-type: none"> • Weekly lesson plan exercises 	<ul style="list-style-type: none"> • Weekly lab work 	2, 4
5	Instruction sets	<ul style="list-style-type: none"> • Online activities • Discussion forum 	<ul style="list-style-type: none"> • Weekly lesson plan exercises 	<ul style="list-style-type: none"> • Weekly lab work 	2





	Recommended reading: Blundel (2007), Chapter 3				
6	Assembly language Recommended reading: Blundel (2007), Chapter 7	<ul style="list-style-type: none"> • Online activities • Discussion forum 	<ul style="list-style-type: none"> • Weekly lesson plan exercises 	<ul style="list-style-type: none"> • Weekly lab work 	2
7	Assembly language Recommended reading: Blundel (2007), Chapter 7	<ul style="list-style-type: none"> • Online activities • Discussion forum 	<ul style="list-style-type: none"> • Weekly lesson plan exercises 	<ul style="list-style-type: none"> • Weekly lab work 	2, 7
8	Operating systems and applications Recommended reading: Blundel (2007), Chapter 8	<ul style="list-style-type: none"> • Online activities • Discussion forum 	<ul style="list-style-type: none"> • Weekly lesson plan exercises 	<ul style="list-style-type: none"> • Weekly lab work 	2
Module 3 Computer networks					
9	Computer networks Recommended reading: Blundel (2007), Chapter 9	<ul style="list-style-type: none"> • Online activities • Discussion forum 	<ul style="list-style-type: none"> • Weekly lesson plan exercises 	<ul style="list-style-type: none"> • Weekly lab work 	3, 5
10	Packet transmission Recommended reading: Blundel (2007), Chapter 10	<ul style="list-style-type: none"> • Online activities • Discussion forum 	<ul style="list-style-type: none"> • Weekly lesson plan exercises 	<ul style="list-style-type: none"> • Weekly lab work 	3
Module 4 Information security					
11	Cryptography, hashing, and digital certificates	<ul style="list-style-type: none"> • Online activities • Discussion forum 	<ul style="list-style-type: none"> • Weekly lesson plan exercises 	<ul style="list-style-type: none"> • Weekly lab work 	4

	Recommended reading: Blundel (2007), Chapter 12				
12	Course Review	Topic review	Practice exam questions	Practice exam complete	1, 2, 3, 4, 5



5. Evidence of learning (Assessment plan)

5.1 Evidence of learning summary

	 Evidence of learning	 Weighting	 Learning outcome	 Due Date
1	Lab work: <ul style="list-style-type: none"> • Lab 1: Binary arithmetic • Lab 2: data representation & logical operations • Lab 3: memory addressing • Lab 4: error detection and correction • Lab 5: assembly language • Lab 6: assembly language • Lab 7: operating systems • Lab 8: networking 	20% in total Labs 1, 2, 3, 4: 2% each Labs 5,6,7,8: 3% each	1,2,3,5	Weekly: <ul style="list-style-type: none"> • Lab 1: week 2 • Lab 2: week 3 • Lab 3: week 5 • Lab 4: week 6 • Lab 5: week 7 • Lab 6: week 8 • Lab 7: week 9 • Lab 8: week 10
9	Mini Test 1: data representation, digital logic, memory addressing	5%	1, 5	Week 4
10	Mini Test 2: sub-networking	5%	3	Week 11
11	Project: fetch-decode-execute cycle	20%	1, 2, 5	Week 12
12	Final Exam: all topics	50%	1, 2, 3, 4, 5	Exam Week

5.2 Evidence of learning task detail

All assessment in this course is individual assessment.

Labs

Title: Learning Activities/ Laboratory Exercises

Type: Academic development holistic assessment

Learning Outcomes Assessed: 1, 2, 3, 5

Due Date:

In weeks 2, 3, 5, 6, 7, 8, 9, 10

Weight: 20%

Marked out of: 20

Task Description:

(Length = 1hr)

The assessed labs are incremental assessment items that are performed during tutorials. The rationale behind these labs is to incremental assessment that is performed during class. The rationale behind this assessment item is to provide students with practice in good study habits and to reinforce understanding of the learning experience material. This is a formative item of assessment. Unless at least 5 of the weekly lab exercises are performed, this assessment item will be considered not to have been submitted and no mark will be recorded. The assessed labs will be held weekly as per the schedule above.

Criteria & Marking:

Accuracy: Correct answer

Communication of methods and steps: Satisfactory communication of correct methods and steps.

Learning Activities will be evaluated in the workshop time each of the weeks mentioned above (total of 8 weeks for 20 marks in total).

20% weighting.

This assessment item:

- is a supervised activity
- is an individual activity
- does not include a self assessment activity

Mini Tests

Title: Mini Test 1

Type: Test or quiz

Learning Outcomes Assessed: 1, 5

Due Date:

Week 4

Weight: 5%

Marked out of: 10

Task Description:

The Mini Test 1 will be conducted during Week 4. It will cover learning experience material from Weeks 1 to 3.

Criteria & Marking:

Accuracy: Correct answer

5% weighting.

Submission: online test

This assessment item:

- is a supervised activity
- is an individual activity
- does not include a self-assessment activity
- does not have a re-attempt provision

Title: Mini Test 2

Type: Test or quiz

Learning Outcomes Assessed: 3

Due Date: Week 11

Weight: 5%

Marked out of: 10

Task Description:

The Mini Test 2 will be conducted during Week 11. It will cover material from Weeks 8 to 10.

Criteria & Marking:

Accuracy: Correct answer

5% weighting.

Submission: written test

This assessment item:

- is a supervised activity
- is an individual activity
- does not include a self assessment activity
- does not have a re-attempt provision

Project

Title: Project

Type: Assignment - Practice-based Assignment

Learning Outcomes Assessed: 1, 2, 5

Due Date: Week 12

Weight: 20%

Marked out of: 100

Task Description:

The project tests the students' ability to apply and synthesise the knowledge and skills obtained in the learning experience and laboratory sessions. You are required to perform the fetch-decode-execute cycle on a stored program in memory using the CPU registers and provided memory addresses and values. This is a summative item of assessment. You will be required to explain your submission to the teaching staff as part of the assessment process.

Criteria & Marking:

Accuracy: Correct answer

Communication of methods and steps: Satisfactory communication of correct methods and steps.

20% weighting.

Submission: online submission and may include individual interview

This assessment item:

- is an individual activity
- does not include a self assessment activity
- does not have a re-attempt provision

Final Exam

Title: Final Exam

Type: Exam - constructed response

Learning Outcomes Assessed: 1, 2, 3, 4, 5

Due Date: Examination Period

Weight: 50%

Marked out of: 50

Perusal: 10 minutes

Duration: 180 minutes

Format: Closed Book

Task Description:

The final exam is a summative assessment item that tests the student's grasp of the theoretical aspects of the course.

Criteria & Marking:

Accuracy: Correct answer

Communication of methods and steps: Satisfactory communication of correct methods and steps.

This assessment item:

- is a centrally organised activity
- is an individual activity
- does not include a self assessment activity

You are responsible for submitting all assessments on time and in the correct format as specified by the teacher.

You are responsible for maintaining copies of assessment drafts prior to submission (including electronic backups). No extensions or special consideration will be given if you are unable to submit an assessment because of data loss or corruption. No extensions or special consideration will be given if you are unaware of assessment deadlines.

5.3 Late Submission

An evidence of learning (assessment) item submitted after the due date, without an approved extension from the Course Coordinator, will be penalised. The standard penalty is the reduction of the mark allocated to the assessment item by 5% of the maximum mark applicable for the assessment item, for each working day or part working day that the item is late. Evidence of learning items submitted more than five working days after the due date are awarded zero marks.

Please refer to the Griffith College website - Policy Library > [Assessment Policy](#) for guidelines and penalties for late submission.

5.4 Other Information about Evidence of Learning

Retention of Originals

You must be able to produce a copy of all work submitted if so requested. Copies should be retained until after the release of final results for the course.

Requests for extension

To apply for an extension of time for an evidence of learning item, you must submit an [Application for Extension of Assignment](#) form to your teacher at least 24 hours before the date the assignment is due. Grounds for extensions are usually: serious illness, accident, disability, bereavement or other compassionate circumstances and must be able to be substantiated with relevant documentation [e.g. [Griffith College Student Medical Certificate](#)]. Please refer to the Griffith College website - [Policy Library](#) - for guidelines regarding extensions and deferred assessment.

Return of Assessment Items

1. Marks awarded for in-trimester assessment items, except those being moderated externally with Griffith University, will be available on the Student Portal within fourteen [14] days of the due date. This does not apply to the final assessment item in this course (marks for this item will be provided with the final course result).
2. Students will be advised of their final grade through the Student Portal. Students can review their exam papers after student grades have been published (see relevant Griffith College Fact Sheet for allocated times at Support> Factsheets). Review of exam papers will not be permitted after the final date to enrol.
3. Marks for **all** assessment items including the final exam (if applicable) will be recorded in the Moodle Course Site and made available to students through the Moodle Course Site.

The sum of your marks overall assessment items in this course does not necessarily imply your final grade for the course. Standard grade cut off scores can be varied for particular courses, so you need to wait for the official release of grades to be sure of your grade for this course.

6. Policies & Guidelines

Griffith College assessment-related policies can be found in the [Griffith College Policy Library](#) which include the following policies:

[Assessment Policy](#), [Special Consideration](#), [Deferred Assessment](#), [Alternate Exam Sitings](#), [Medical Certificates](#), [Academic Integrity](#), [Finalisation of Results](#), [Review of Marks](#), [Moderation of Assessment](#), [Turn-it-in Software Use](#). These policies can be accessed within the [Policy Library](#)

Academic Integrity Griffith College is committed to maintaining high academic standards to protect the value of its qualifications. Academic integrity means acting with the values of honesty, trust, fairness, respect and responsibility in learning, teaching and research. It is important for students, teachers, researchers and all staff to act in an honest way, be responsible for their actions, and show fairness in every part of their work. Academic integrity is important for an individual's and the College's reputation.

All staff and students of the College are responsible for academic integrity. As a student, you are expected to conduct your studies honestly, ethically and in accordance with accepted standards of academic conduct. Any form of academic conduct that is contrary to these standards is considered a breach of academic integrity and is unacceptable.

Some students deliberately breach academic integrity standards with intent to deceive. This conscious, pre-meditated form of cheating is considered to be one of the most serious forms of fraudulent academic behaviour, for which the College has zero tolerance and for which penalties, including exclusion from the College, will be applied.

However, Griffith College also recognises many students breach academic integrity standards without intent to deceive. In these cases, students may be required to undertake additional educational activities to remediate their behaviour and may also be provided appropriate advice by academic staff.

As you undertake your studies at Griffith College, your lecturers, tutors and academic advisors will provide you with guidance to understand and maintain academic integrity; however, it is also your responsibility to seek out guidance if and when you are unsure about appropriate academic conduct.

In the case of an allegation of a breach of academic integrity being made against a student he or she may request the guidance and support of a Griffith College Student Learning Advisor or Student Counsellor.

Please ensure that you are familiar with the Griffith College Academic Integrity Policy; this policy provides an overview of some of the behaviours that are considered breaches of academic integrity, as well as the penalties and processes involved when a breach is identified.

For further information please refer to the Griffith College website - Policy Library > [Academic Integrity Policy](#)

Reasonable Adjustments for Assessment – The Disability Services policy

The [Disability Services policy](#) (accessed within the [Policy Library](#)) outlines the principles and processes that guide the College in making reasonable adjustments to assessment for students with disabilities while maintaining academic robustness of its programs.

Risk Assessment Statement

There are no out of the ordinary risks associated with this course.

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